Proximate characteristics and statistical optimization of ultrasound-assisted extraction of high-methoxyl-pectin from *Hylocereus polyrhizus* peels

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ABSTRACT

Ultrasound-assisted-extraction (UAE) and statistical optimization of significant process parameters for high methoxy pectin (HMP) from *Hylocereus polyrhizus* peels (HPP) were examined and functional properties and proximate chemical characteristics were evaluated in the present study. Statistically, the maximum yield of HMP of 31.4% with a 56.10% degree of esterification (DE) was achieved by a quadratic polynomial equation and regression analysis of 88% and 86%, respectively. The optimal observed conditions for UAE of HMP were; agitation 250 rpm, extraction temperature 65°C, extraction time at 70 min, extraction solvent with pH value of 2 and LSR of 12:1 (v/w). The proximate characteristics showed 17.93% of mannose, 7.65% of rhamnose, 44.34% of galacturonic acid, 2.8% of glucose, 27.32% of galactose with 79.8% purity of the total sugar extracted from HPP. Conclusively, that the extracted HMP from HPP using UAE possesses a high yield of pectin with a significant lower extraction temperature.